



Intermediate Excel Pivot Tables

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About the speaker:

David H. Ringstrom, CPA, is an author and nationally recognized instructor who teaches scores of webinars each year. His Excel courses are based on over 25 years of consulting and teaching experience. His mantra is “Either you work Excel, or it works you.” David offers spreadsheet and database consulting services nationwide.



Excel Versions

I'll be teaching from the Microsoft 365 version of Excel, and noting any differences or limitations in the legacy versions of Excel. References to Excel 2013+, Excel 2016+, and so on mean a feature is available in all subsequent versions, including Microsoft 365.

The Future of Excel

Microsoft 365 (Formerly Office 365)

Subscription-based version of Microsoft Office, which includes Excel. Use the software on multiple devices, new calculation engine, services and more features are rolling out that will dramatically set this version apart from past Excel versions.
www.microsoft365.com

Legacy Versions

Perpetual Licenses

Pay once for the software to use on a single computer. No new features added until you buy a new license. Includes

Excel 2019
Excel 2016
Excel 2013
Excel 2010
Excel 2007 and earlier

1 File Home Insert Page Layout

2 Cut Copy

Format Painter

Calibri

B I U

I demonstrate each technique at least twice, first by way of numbered steps in PowerPoint, and then in Excel.

The following articles written by David Ringstrom include PDF of today's presentation along with an example workbook that contains most examples I'll teach from as well as related articles.

Email ask@davidringstrom.com if you haven't received the handouts.

Related Articles



Initiating a Pivot Table

1 Select any cell within your list.

2 Insert

3 PivotTable

4 OK

4 OK

	A	B	C	D	E	F
1	Region	City	Vendor	Product	Cases Sold	Total Sales
2	North GA	Atlanta	Fruit R Us	Oranges	6,168	61,680
3	North GA	Atlanta	Fruit R Us	Apples	6,079	85,106
4	North GA	Atlanta	Fruit R Us	Kiwi	6,058	66,638
5	North GA	Atlanta	Fruit R Us			75,548
6	North GA	Atlanta	Fruit R Us			29,940
7	North GA	Atlanta	Bob's Fruit			93,816
8	North GA	Atlanta	Bob's Fruit			21,910
9	North GA	Atlanta	Bob's Fruit			99,670
10	North GA	Atlanta	Bob's Fruit			98,420
11	North GA					89,930
12	North GA					54,263
13	North GA					107,856
14	North GA					71,747
15	North GA					126,630
16	North GA					11,557
17	North GA					72,061
18	North GA					31,260
19	North GA					43,121
20	North GA					81,521
21	North GA					93,405
22	North GA	Blue Ridge	Mountain Fruit	Oranges	6,415	89,810



Adding Fields to a Pivot Table

1 Select Region, which Excel places in the Rows section.

2 One of each region from the Fruit Sales list appears.

3

4 Cases sold by region appears.

Row Labels	Sum of Cases Sold
Mid GA	56088
North GA	173289
South GA	38210
Grand Total	267587



Pivot Table Commands

The screenshot illustrates the PivotTable interface in Excel, highlighting key commands and field list management.

Top Ribbon: The **PivotTable Analyze** and **Design** tabs are circled in red. A green callout box states: "The PivotTable Analyze and Design tabs appear when your cursor is within a Pivot Table. The field list appears in the same fashion."

PivotTable Tools: A yellow callout box points to the **Options** tab (labeled **PivotTable Analyze** in Excel 2007/2010) and the **Design** tab. A red callout box states: "The PivotTable Analyze and Design tabs, as well as the Field List vanish when you move your cursor outside of the pivot table."

PivotTable Fields Task Pane: The task pane shows the **Region** field in the **Rows** area and **Sum of Cases Sold** in the **Values** area. A yellow callout box with a red circle and the number 1 states: "If you closed the field list, right-click on the pivot table."

Right-click Context Menu: A right-click context menu is shown over the pivot table. The **Show Field List** option is circled in red with a red circle and the number 2.

Row Label	Sum of Cases Sold
Mid GA	56088
North GA	
South GA	
Grand Total	



Filtering Blank Rows

1 Click the corner of the worksheet to select all rows and columns. This is necessary so that we can filter out the blank rows.

2 Transform Data - Fruit - Excel

3 Filter

4 Product Cases Sold Total Sales

5 Search (Select All)

6 Apples Bananas Kiwi Mixed Berries Oranges Product Blanks

7 Product

8 Blanks

9 OK

10 Select all visible rows (except row 1) and press Ctrl-Minus to delete.

11 Filter

Product	Cases Sold	Total Sales
Oranges	6551	72061
Apples	6079	85106



Fill In Missing Data

	A	B	C
1	Region	City	Vendor
2	North GA	Atlanta	Fruit R Us
3			=
4			
5			
6			
7			
8			
9			
10			
11			

1 Type an equal sign, tap the Up arrow key once, and then press Ctrl-Enter.

	A	B	C
1	Region	City	Vendor
2	North GA	Atlanta	Fruit R Us
3	North GA	Atlanta	Fruit R Us
4			
5			
6			
7	North GA	Atlanta	Bob's Fruit
8	North GA	Atlanta	Bob's Fruit
9	North GA	Atlanta	Bob's Fruit
10	North GA	Atlanta	Bob's Fruit
11	North GA	Atlanta	Bob's Fruit

3 Tap the Up arrow key once so that only one cell is selected.

	A	B	C
1	Region	City	Vendor
2	North GA	Atlanta	Fruit R Us
3	North GA	Atlanta	Fruit R Us
4			
5			
6	North GA	Atlanta	Bob's Fruit
7	North GA	Atlanta	Bob's Fruit
8	North GA	Atlanta	Bob's Fruit
9	North GA	Atlanta	Bob's Fruit
10	North GA	Atlanta	Bob's Fruit
11	North GA	Atlanta	Bob's Fruit

5 Right-click any cell.

	A	B	C
1	Region	City	Vendor
2	North GA	Atlanta	Fruit R Us
3	North GA	Atlanta	Fruit R Us
4			
5			
6	North GA	Atlanta	Bob's Fruit
7	North GA	Atlanta	Bob's Fruit
8	North GA	Atlanta	Bob's Fruit
9	North GA	Atlanta	Bob's Fruit
10	North GA	Atlanta	Bob's Fruit
11	North GA	Atlanta	Bob's Fruit

6 Paste Options: Paste Special...

	A	B	C
1	Region	City	Vendor
2	North GA	Atlanta	Fruit R Us
3	North GA	Atlanta	Fruit R Us
4	North GA	Atlanta	Fruit R Us
5	North GA	Atlanta	Fruit R Us
6	North GA	Atlanta	Bob's Fruit
7	North GA	Atlanta	Bob's Fruit
8	North GA	Atlanta	Bob's Fruit
9	North GA	Atlanta	Bob's Fruit
10	North GA	Atlanta	Bob's Fruit
11	North GA	Atlanta	Bob's Fruit

2 All previously blank cells are now filled.

	A	B	C
1	Region	City	Vendor
2	North GA	Atlanta	Fruit R Us
3	North GA	Atlanta	Fruit R Us
4	North GA	Atlanta	Fruit R Us
5	North GA	Atlanta	Fruit R Us
6	North GA	Atlanta	Bob's Fruit
7	North GA	Atlanta	Bob's Fruit
8	North GA	Atlanta	Bob's Fruit
9	North GA	Atlanta	Bob's Fruit
10	North GA	Atlanta	Bob's Fruit
11	North GA	Atlanta	Bob's Fruit

4 Press Ctrl-A to select the entire list, and then press Ctrl-C to copy.

	A	B	C
1	Region	City	Vendor
2	North GA	Atlanta	Fruit R Us
3	North GA	Atlanta	Fruit R Us
4	North GA	Atlanta	Fruit R Us
5	North GA	Atlanta	Fruit R Us
6	North GA	Atlanta	Bob's Fruit
7	North GA	Atlanta	Bob's Fruit
8	North GA	Atlanta	Bob's Fruit
9	North GA	Atlanta	Bob's Fruit
10	North GA	Atlanta	Bob's Fruit
11	North GA	Atlanta	Bob's Fruit

7 End result is no blank rows or cells, no formulas.



PivotTable Data Integrity Risks

1 Insert a blank row after Mid GA and then click any cell above the blank row.

2 Insert

3 PivotTable

4 OK

5 Region

6 Total Sales

7 The pivot table only shows 2 of the 3 regions.

8 Right-click the blank row.

9 Delete

10 Right-click.

11 Refresh

12 South GA does not appear, and will not until the pivot table data source is manually resized.

Region	Sum of Total Sales
Mid GA	691787
North GA	2108437
Grand Total	2800224



PivotTable Data Integrity Risks

	A	B	C
40	Mid GA	Macon	Whistlestop Fruit St
41	Mid GA	Macon	Whistlestop Fruit St
42	South GA	Brunswick	Navel Oranges & Mo
43	South GA	Brunswick	Navel Oranges & Mo
44			
45			
46			
47			
48	South GA	Valdosta	Oranges 'n Onions
49	South GA	Valdosta	Oranges 'n Onions
50	South GA	Valdosta	Oranges 'n Onions

13 Ensure that the blank row has been removed (or append more data if you wish).

14 Search: PivotTable Analyze Design

15 Refresh Change Data Source

Clear Select Move PivotTable

Data Actions

H I J K

	A	B	C
1	Region	City	Vendor
2	North GA	Atlanta	Fruit R Us
3	North GA	Atlanta	Fruit R Us
4	North GA	Atlanta	Fruit R Us
5	North GA	Atlanta	Fruit R Us
6	North GA	Atlanta	Fruit R Us
7	North GA	Atlanta	Bob's Fruit
8			
9			
10			

16 Select the entire list, including the South GA region.

Move PivotTable

Choose the data that you want to analyze

☒ Select a table or range

Table/Range: Fruit!\$A\$1:\$F\$51

☐ Use an external data source

Choose Connection...

Connection name:

17 OK

22	North GA	Blue Ridge	Mountain Fruit
----	----------	------------	----------------

Sheet1 Fruit

	A	B	C
1			
2			
3	Row Labels		Sum of Total Sales
4	Mid GA		691787
5	North GA		2108437
6	South GA		449414
7	Grand Total		3249638
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			

18 The new region appears. Pivot tables refresh automatically when you change the data source.

Sheet1 Fruit



Pivot Tables with Table Feature

Step 1: Right-click. Right-click on the 'Sheet1' tab at the bottom of the worksheet.

Step 2: Insert... In the context menu, click on 'Insert...'.

Step 3: Insert a blank row between Mid GA and South GA. Click on the 'Insert' option in the 'Insert' menu to add a new row.

Step 4: Select any cell within the list above the blank row. Select a cell in the data range (e.g., A40).

Step 5: Insert Click on the 'Insert' tab in the ribbon.

Step 6: Table Click on the 'Table' button in the 'Tables' group of the 'Insert' tab.

Step 7: OK In the 'Create Table' dialog box, click 'OK'.

Step 8: Choose Summarize with PivotTable from the Table Design menu. In the 'Table Design' tab, click on 'Summarize with PivotTable'.

Step 9: OK In the 'PivotTable' task pane, click 'OK'.

Data Table:

Row Labels	Sum
Mid GA	
North GA	
South GA	
Grand Total	

Table Data:

Table1	Table2	Table3
Mid GA	Macon	Whistlestop Fruit St
Mid GA	Macon	Whistlestop Fruit St
South GA	Brunswick	Navel Oranges & Mo
South GA	Brunswick	Navel Oranges & Mo
South GA	Valdosta	Oranges 'n Onions
South GA	Valdosta	Oranges 'n Onions
South GA	Valdosta	Oranges 'n Onions

PivotTable Task Pane:

Table Name: Table1

Table/Range: Table1

Choose where you want the PivotTable report to be placed:

- ☒ New Worksheet
- ☐ Existing Worksheet

Location:

Choose whether you want to analyze multiple tables:

- ☐ Add this data to the Data Model

OK



Remove Table Feature from Worksheet

1 Click the **Table Design** ribbon.

2 Click the **Quick** button in the Table Design ribbon.

3 Click the **Convert to Range** option in the Quick menu.

4 The formatting is removed but the list is still a table.

5 Optional: Click **Convert to Range** on the Table Design menu.

6 Click **Yes** in the **Do you want to convert the table to a normal range?** dialog box.

7 The list is now a normal range of cells. Any pivot tables based on the table are now based on a static range of cells.

Region	City	Vendor	Product	Cases Sold	Total Sales
North GA	Atlanta	Fruit R Us	Kiwi	6,058	66,63
North GA	Atlanta	Fruit R Us	Kiwi	7,542	75,54
North GA	Atlanta	Fruit R Us	Kiwi	29,942	29,94
North GA	Atlanta	Bob's Fruit	Oranges	7,818	93,81
North GA	Atlanta	Bob's Fruit	Apples	1,565	21,91
North GA	Atlanta	Bob's Fruit	Kiwi	9,967	99,67
North GA	Atlanta	Bob's Fruit	Bananas	9,842	98,42
North GA	Atlanta	Bob's Fruit	Mixed Berries	8,993	89,93
North GA	Atlanta	Fruitju	Oranges	4,933	54,26
North GA	Atlanta	Fruitju	Apples	7,704	107,85
North GA	Atlanta	Fruitju	Kiwi	5,519	71,74



Reconstructing Pivot Table Source Data

Step 1: Right-click on the 'Grand Total' row label in the pivot table.

Step 2: Select 'Move or Copy...' from the context menu.

Step 3: In the 'Move or Copy' dialog box, select '(new book)' under 'To book:'.

Step 4: Check the 'Create a copy' checkbox.

Step 5: Click the 'OK' button.

Step 6: The pivot table appears in a separate workbook (Sheet1).

Step 7: Click the 'PivotTable Analyze' tab in the ribbon.

Step 8: Click the 'Clear' button in the 'Actions' group.

Step 9: Clear Filters should be disabled, if not click the command.

Step 10: Double-click the grand total cell (3249638) in the pivot table.

Step 11: A new worksheet appears with all of the underlying detail.

Row Labels	Sum of Total Sales
Mid GA	691787
North GA	2108437
South GA	449414
Grand Total	3249638

Region	City	Vendor	Product
Mid GA	Macon	Middle Ge	Oranges
Mid GA	Macon	Middle Ge	Apples
Mid GA	Macon	Middle Ge	Kiwi
Mid GA	Macon	Middle Ge	Bananas
Mid GA	Macon	Middle Ge	Mixed Berry



Preventing Pivot Table Drill Down

1 Double-click any amount within the pivot table.

2 A new worksheet appears with the underlying detail.

3 Right-click any cell within the pivot table.

4 PivotTable Options...

5 Data

6 Turn this setting off to prevent users from being able to drill-down.

7 OK

Region	City	Vendor	Product
Mid GA	Macon	Whistlec	Mixed Berry
Mid GA	Macon	Whistlec	Bananas
Mid GA	Macon	Whistlec	Kiwi
Mid GA	Macon	Whistlec	Apples
Mid GA	Macon	Whistlec	Oranges
Mid GA	Macon	Whistlec	Apples



Protecting Pivot Table Data

1 Double-click any number.

2 This prompt appears if Enable Show Details has been turned off for a given pivot table.

3 Review

4 Protect Sheet

5 Optional: Provide a password.

6 Use PivotTable & PivotChart

7 OK

8 Double-click any number.

9 OK

Row Labels	Sum of Total Sales
Mid GA	691787
North GA	2108437
South GA	449414
Grand Total	3249638



Build a Pivot Table

	A	B	C
1	Region	City	Vendor
2	North GA	Atlanta	Fruit R Us
3	North GA	Atlanta	Fruit R Us
4			
5			
6	North GA	Atlanta	Fruit R Us
7	North GA	Atlanta	Bob's Fruit
8	North GA	Atlanta	Bob's Fruit
9	North GA	Atlanta	Bob's Fruit
10	North GA	Atlanta	Bob's Fruit
11	North GA	Atlanta	Bob's Fruit

1 Click any cell within the list.

Create PivotTable

Choose the data that you want to analyze

☒ Select a table or range

Table/Range: Fruit!\$A\$1:\$F\$51

☐ Use an external data source

Choose whether you want to analyze multiple tables

☐ Add this data to the Data Model

4 OK

	A	B
1		
2		
3	Row Labels	Sum of Total Sales
4	Bob's Fruit	403746
5	Fruit Direct	308852
6	Fruit R Us	318912
7	Fruitju	372053
8	Middle Georgia Fruit	196017
9	Mountain Fruit	383506
10	Navel Oranges & More	235373
11	Orange U Glad	321368
12	Oranges 'n Onions	214041
13	Whistlestop Fruit Stand	495770
14	Grand Total	3249638
15		
16		
17		
18		
19		
20		
21		
22		

7 The pivot table appears.

2 Insert

3 PivotTable

5 Vendor

6 Total Sales



Pivot Table Calculations

1 Drag Total Sales into the Values section a second time.

2 Right-click.

3 Value Field Settings...

4 Excel 2007: Choose the Show Values Tab after clicking here.

5

Vendor	Sum of Total Sales	Sum of Total Sales2
403746		12.66%
308852		9.69%
257232		8.07%
372053		11.67%
196017		6.15%
383506		12.03%
235373		7.38%
321368		10.08%
214041		6.71%
495770		15.55%
3187958		100.00%



Calculated Fields

1 PivotTable Analyze

2 Fields, Items, & Sets

3 Calculated Field...

4 Insert Calculated Field

Name: Per Case Price

Formula: = 'Total Sales' / 'Cases Sold'

5 Fields:

- Region
- City
- Vendor
- Product
- Cases Sold
- Total Sales

6 OK

7 A new column appears on the pivot table.

	B	C
1		
2		
3	Sum of Total Sales	Sum of Per Case Price
4	403746	10.57341888
5	308852	12.19698286
6	318912	11.73808385
7		59865
8		83016
9		50819
10	235373	11.66367691
11	321368	12.30776301

8 PivotTable Fields

Choose fields to add to report:

Search

- ☐ Region
- ☐ City
- ☒ Vendor
- ☐ Product
- ☐ Cases Sold
- ☒ Total Sales
- ☒ Per Case Price

You can turn calculated fields on or off by way of the PivotTable Field List.



GetPivotData function

1 Drag Cases Sold into the Values section.

Filters: Columns: Σ Values

Rows: Vendor

Values: Sum of Cases Sold, Sum of Total Sales

3 If you click inside the pivot table while writing the formula, Excel uses GETPIVOTDATA.

38185	403746	10.57342
25322	308852	12.19698
27169	318912	12.19698
27487	372153	12.19698
15538	196017	12.19698
29015	383506	12.19698
20180	235373	12.19698
26111	321368	12.19698

=GETPIVOTDATA("Sum of Total Sales", \$A\$3)

2 You can create a "normal" formula if you type the cell addresses.

Sum of Cases	Sum of Total	Per Case Price
38185	403746	10.57342
25322	308852	
27169	318912	
27487	372153	
15538	196017	
29015	383506	
20180	235373	
26111	321368	

=C4/B4

4 GETPIVOTDATA returns the same value on every row because it creates a hard-coded reference.

Sum of Cases	Sum of Total	Per Case Price
38185	403746	10.57342
25322	308852	12.19698
27169	318912	12.19698
27487	372153	12.19698
15538	196017	12.19698
29015	383506	12.19698
20180	235373	12.19698
26111	321368	12.19698

5 PivotTable Analyze

6 Options

7 Clear the checkbox for Generate GetPivotData to permanently disable this feature. You will then be able to write formulas that work within a pivot table without encountering GETPIVOTDATA.

Generate GetPivotData

Row Label: Bob's F

13	Whistlestop F	
14	Grand Total	
15		

Pivot Table Options (Excel 2019+)

1 File

2 Options

3 Data

4 Edit Default Layout...

5 Unlike all earlier versions of Excel, Excel 2019 and Microsoft 365 users can now manage default options related to future pivot tables. Changes here won't affect existing pivot tables.

6 PivotTable Options...

7 OK

8 OK

Excel Options

General

Formulas

Data

Proofing

Save

Data options

Change options related to data import and data analysis.

Make changes to the default layout of PivotTables. **4** Edit Default Layout...

☒ Disable undo for large PivotTable refresh operations to reduce refresh time

Edit Default Layout

Layout Import

A1

Subtotals

Show all Subtotals at Top of Group

Grand Totals

On for Rows and Columns

Report Layout

Show in Compact Form

Blank Rows

☐ Insert Blank Line after Each Item

Reset to Excel Default

6 PivotTable Options...

7 OK

8 OK



Pivot Table Slicers (Excel 2010+)

1 Select any cell within a pivot table.

2 PivotTable Analyze

3 Insert Slicer

4 Insert Slicers

5 OK

6 Bananas

7 The pivot table now shows sales for a single product.

Row Labels	Sum of Total Sales
Mid GA	
North GA	
South GA	
Grand Total	756649

Slicers are not available in Excel 2007.



Creating a Pivot Chart

1 Select any cell within your data.

	A	B	C
4	North GA	Atlanta	Fruit R Us
5	North GA	Atlanta	Fruit R Us
9	North GA	Atlanta	Bob's Fruit
10	North GA	Atlanta	Bob's Fruit
11	North GA	Atlanta	Bob's Fruit
12	North GA	Atlanta	Fruitju
13	North GA	Atlanta	Fruitju

Create PivotChart

Choose the data that you want to analyze

☒ Select a table or range

Table/Range: Fruit!\$A\$1:\$F\$51

☐ Use an external data source

Choose Connection...

Choose whether you want to analyze multiple tables

☐ Add this data to the Data Model

3 OK

2 Choose PivotChart on the Insert menu.

Excel 2010/2007

File Home Insert Maps PivotChart

PivotTable Table PivotChart

PivotChart Fields

Choose fields to add to report:

Search

☒ Region

☐ City

☐ Vendor

☐ Product

☐ Cases Sold

☒ Total Sales

4

5

1	Row Labels	Sum of Total Sales
2	Mid GA	691787
3	North GA	2108437
4	South GA	449414
5	Grand Total	3249638

Sum of Total Sales

Total

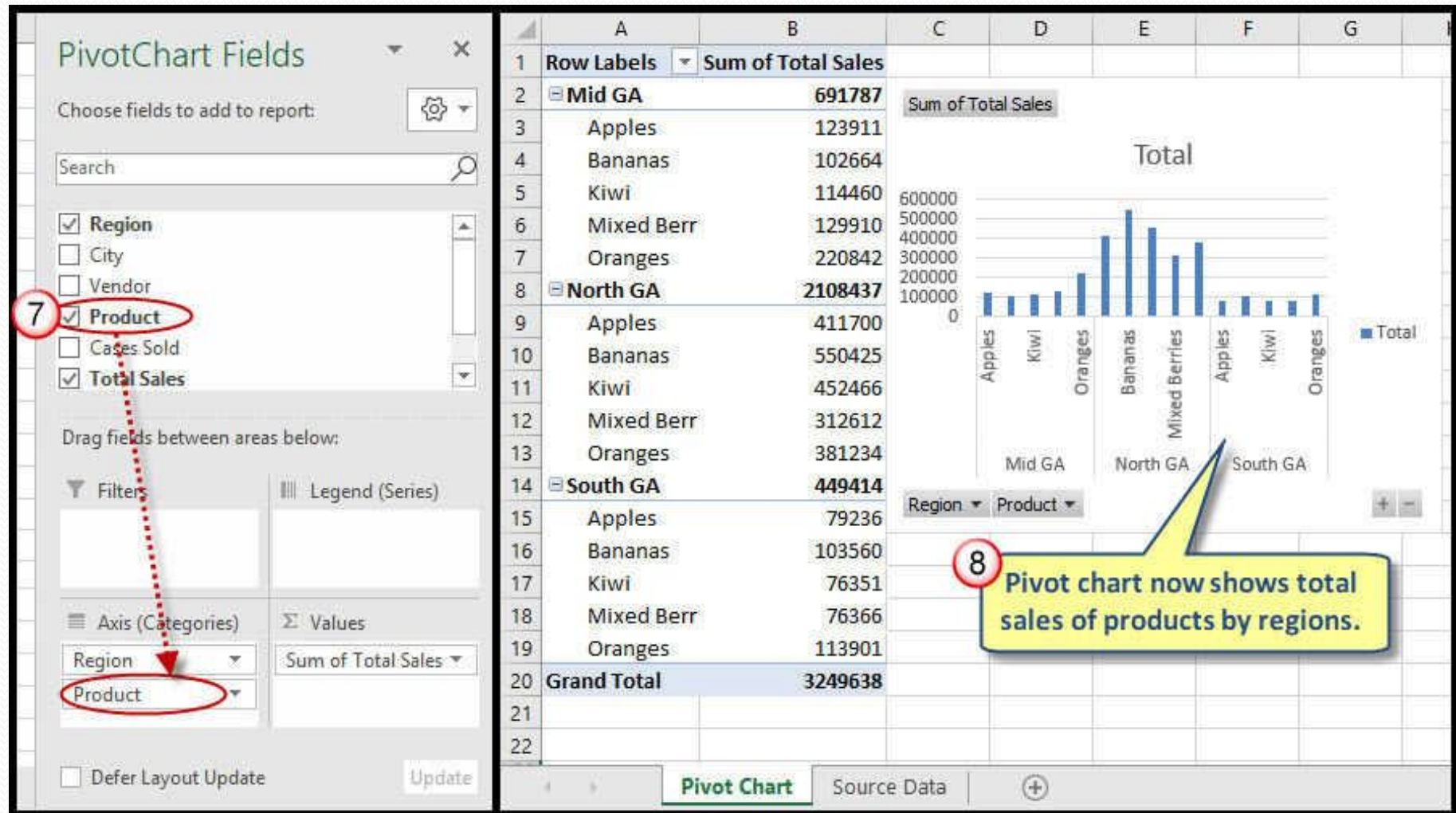
Region

6 Excel creates both a pivot table and a pivot chart.

Sheet1 Fruit

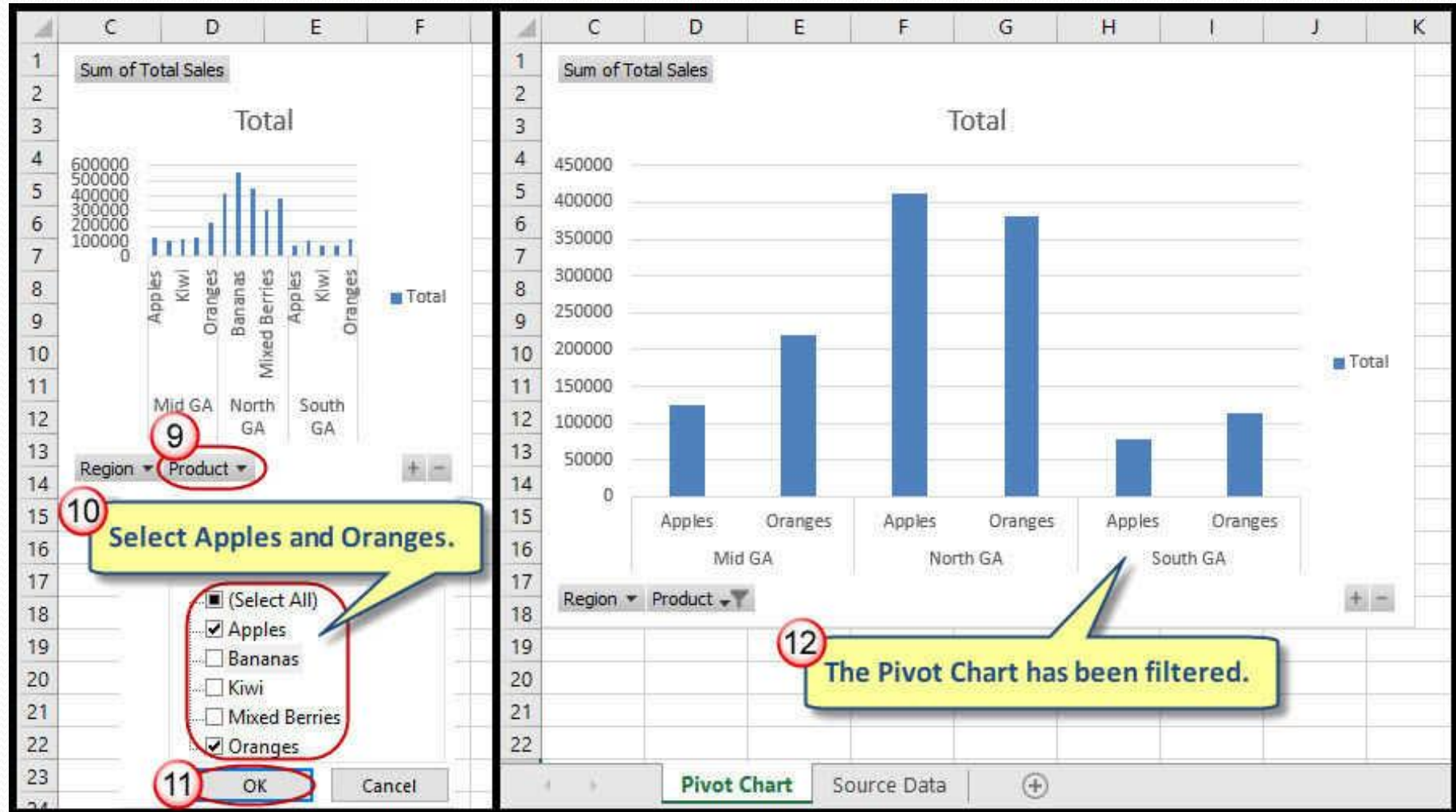


Creating a Pivot Chart





Filtering a Pivot Chart





Hiding Field Buttons on Pivot Chart

1 Right-click on any axis field button.

2 Hide All Field Buttons on Chart

3 The Field Buttons have been removed.

4 PivotChart Analyze

5 Format

Format pivot charts in the same fashion as "regular" charts in Excel.

6 The field buttons have been turned on again.

Data from Panel 2:

Region	Product	Total Sales
Mid GA	Apples	120,000
Mid GA	Oranges	220,000
North GA	Apples	400,000
North GA	Oranges	380,000
South GA	Apples	80,000
South GA	Oranges	110,000



Formatting Pivot Charts

1 Click once on a pivot chart to display the Design and Format tabs.

2 You can format a pivot chart in the same fashion as a "normal" chart in Excel.

In Excel 2013, most features contained on the Layout tab are now available here.

Row Labels	Sum of Total Sales
Apples	614847
Bananas	756649
Kiwi	643277
Mixed Berries	518888
Oranges	715977
Grand Total	3249638

Product ▼

Pivot Chart Data | **Pivot Chart**

Thank you for attending!

I'm happy to hear from you. In particular let me know if you did not receive the handouts for this presentation.

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Is there something you were hoping to learn today but didn't?
Please let me know. You can ask me anything about Excel.